

L Number	Hits	Search Text	DB	Time stamp
-	3	automatic\$5 near5 activat\$5 near5 applet\$1	USPAT	2001/01/26 08:58
-	233	automatic\$5 near5 activat\$5 near5 program\$1	USPAT	2001/01/26 09:05
-	107	(automatic\$5 near5 activat\$5 near5 program\$1) and network\$1	USPAT	2001/01/26 09:06
-	34	((automatic\$5 near5 activat\$5 near5 program\$1) and network\$1) and download\$3	USPAT	2001/01/26 09:06
-	1054	plug\$3 adj5 play\$3	USPAT	2001/01/26 09:31
-	117	download\$3 adj5 activat\$4	USPAT	2001/01/26 09:32
-	1332	plug\$3 adj3 play\$3	USPAT; US-PGPUB	2002/01/02 13:17
-	1201	(plug\$3 adj3 play\$3) and control\$3	USPAT; US-PGPUB	2002/01/02 13:20
-	68	((plug\$3 adj3 play\$3) and control\$3) and @ad<19930730	USPAT; US-PGPUB	2002/01/02 14:58
-	45055	control\$5 adj3 panel\$3	USPAT; US-PGPUB	2002/01/02 14:48
-	1924961	(control\$5 adj3 panel\$3) @ad<19930730	USPAT; US-PGPUB	2002/01/02 14:55
-	114993	((control\$5 adj3 panel\$3) @ad<19930730) and driver\$1	USPAT; US-PGPUB	2002/01/02 14:56
-	3403	((((control\$5 adj3 panel\$3) @ad<19930730) and driver\$1) and (device adj2 driver\$1)	USPAT; US-PGPUB	2002/01/02 14:57
-	3015	(((((control\$5 adj3 panel\$3) @ad<19930730) and driver\$1) and (device adj2 driver\$1)) and @ad<19930730	USPAT; US-PGPUB	2002/01/02 15:01
-	147	(((((control\$5 adj3 panel\$3) @ad<19930730) and driver\$1) and (device adj2 driver\$1)) and @ad<19930730) and (control\$5 adj3 panel\$3)	USPAT; US-PGPUB	2002/01/02 15:17
-	84	((((((control\$5 adj3 panel\$3) @ad<19930730) and driver\$1) and (device adj2 driver\$1)) and @ad<19930730) and (control\$5 adj3 panel\$3)) and (load\$3 or download\$3)	USPAT; US-PGPUB	2002/01/02 15:19
-	14	("4845644" "4866638" "4901221" "4914568" "5040131" "5041992" "5060140" "5065345" "5109515" "5291587" "5293476" "5309556" "5313574" "5333299").PN.	USPAT; US-PGPUB	2002/01/02 16:20
-	1	5887193.pn.	USPAT; US-PGPUB	2002/01/03 10:09

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U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<u>4845644</u>	July 1989	Anthias et al.	395/157
<u>4866638</u>	September 1989	Cosentino et al.	395/155
<u>4901221</u>	February 1990	Kodosky et al.	395/159
<u>4914568</u>	April 1990	Kodosky et al.	395/275
<u>5040131</u>	August 1991	Torres	395/156
<u>5041992</u>	August 1991	Cunningham et al.	395/155
<u>5060140</u>	October 1991	Brown et al.	364/200
<u>5065345</u>	November 1991	Knowles et al.	395/154
<u>5109515</u>	April 1992	Laggis et al.	395/725
<u>5291587</u>	March 1994	Kodosky et al.	395/500
<u>5293476</u>	March 1994	Wolber et al.	395/159
<u>5309556</u>	May 1994	Sismilich	395/161
<u>5313574</u>	May 1994	Beethe	395/159
<u>5333299</u>	July 1994	Koval et al.	395/550

ART-UNIT: 231

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ABSTRACT:

A multimedia system includes a multimedia device control program having a plurality of application program selectable controls for controlling operation of a like plurality of different classes of multimedia devices. Each class has a different set of controllable device functions or attributes. In response to selection of a class by an application program, a unique control panel is created in a user interface for controlling operation of a device. The selected control performs all of the processing actions necessary to control the device in response to user selections on the interface, without involvement of the application program in such actions. The multimedia control program includes a plurality of panel templates from which control panels are created in a control screen. Each panel has a plurality of controllers that can

manipulated by a user to control a corresponding function of a multimedia device. The templates provide a consistent interfaces having a common look and feel. The multimedia control program also includes a plurality of class control programs one or more of which are selected by an application program to be attached to a like number of multimedia devices for controlling operation of the devices in response to user selections on the user interface, thereby relieving the application program of performing the necessary control functions.

20 Claims, 7 Drawing figures

APD:

19921215

ABPL:

A multimedia system includes a multimedia device control program having a plurality of application program selectable controls for controlling operation of a like plurality of different classes of multimedia devices. Each class has a different set of controllable device functions or attributes. In response to selection of a class by an application program, a unique **control panel** is created in a user interface for controlling operation of a device. The selected control performs all of the processing actions necessary to control the device in response to user selections on the interface, without involvement of the application program in such actions. The multimedia control program includes a plurality of panel templates from which **control panels** are created in a control screen. Each panel has a plurality of controllers that can manipulated by a user to control a corresponding function of a multimedia device. The templates provide a consistent interfaces having a common look and feel. The multimedia control program also includes a plurality of class control programs one or more of which are selected by an application program to be attached to a like number of multimedia devices for controlling operation of the devices in response to user selections on the user interface, thereby relieving the application program of performing the necessary control functions.

BSPR:

A still further object of the invention is to provide a multimedia device control program which creates a **control panel** with minimum involvement of an application program and which thereafter controls operation of the device without intervention of the application program.

BSPR:

Briefly, in accordance with the invention, a multimedia system includes a multimedia device control program having a plurality of application program selectable controls for a like plurality of different classes of multimedia devices. Each class has a different set of controllable device functions or attributes. In response to selection of a control by an application program, a unique **control panel** is created in a user interface for controlling operation of a device. The selected control performs all of the processing actions necessary to control the device in response to user selections on the interface, without involvement of the application program in such actions.

BSPR:

In accordance with another aspect of the invention, the multimedia application program includes a plurality of predetermined templates defining different **control panels** which contain user manipulable controllers. The application program sends a message to the control program indicating its selection and the control program creates the desired control screen from the selected template.

DEPR:

FIG. 2 illustrates an exemplary control screen 200 in which a plurality of windows or panels are displayed on a monitor in response to execution of a

sample program named "VIDPLAY". This program creates a display of a control screen 200 that includes a video window 202, an audio control panel 204, a video control panel 206, and a player control panel 208. Also presented in the screen is a standard cursor 210 that is manipulated through use of mouse 79. Window 202 contains a title bar 212 bearing the title "Sample VIDPLAY", a window control button 213, a sizing button 215, a menu bar 214, and a video viewing area 216. The window itself is conventional and can be manipulated by means of cursor 210 to change the position and size of the window.

DEPR:

Audio control panel 204 contains a title bar 218 identifying the panel as an "Audio" control panel, and a control area containing various simulated controllers or controls 220-224. Control 220 is a mute button, and controls 221-224 are dials for respectively controlling volume, balance, treble, and bass. With reference to control 221, each dial includes reference marks 228 around the periphery of a circular knob, a movable pointer 229, a decrease button 226, and an increase button 227. Buttons 226 and 227 respectively display graphic symbols "-" and "+" which generally denote the button function. Also included in control 221 is a legend "Volume" signifying the function of the device being controlled. When the cursor 210 is placed on one of buttons and the mouse is clicked, the pointer appears to move until the mouse button is released. Such movement would be accompanied by signals being sent to the physical device whose controls are being simulated to cause the corresponding action to occur. For example, if the cursor is clicked on button 227, pointer 229 rotates clockwise and the actual volume of the audio device would increase.

DEPR:

Video control panel 206 has a title bar 230 displaying the legend "Video", a freeze button 231, and dial controls 232-236 for controlling the brightness, contrast, color, tint, and sharpness, of the video device, e.g., monitor 112 (FIG. 1). Player control panel 208 displays the legend "Player Control" in title bar 240, push buttons 241-248, and a slider control 249. Buttons 241-248 include different symbols symbolic of different player functions controlled thereby. Such buttons provide, for video disc player 108, controls of eject, pause, play, play backward, record, repeat, rewind, scan forward, scan backward, step backward (frame backward), step forward (frame advance), and stop. Slider control 249 displays the current device position in time or frame based units.

DEPR:

It is to be noted that the above discussion of FIG. 2 provides nomenclature facilitating an understanding of the invention as described below. The contents of control screen 200 as shown in FIG. 2 is intended to primarily show what samples of different control panels look like. Quite obviously, in any given system, the type and number of panels is dependent upon what multimedia devices are connected to the system, and what controls are selected to be shown. Further variations in such control panels and how they are created are described hereinafter.

DEPR:

FIG. 3 illustrates the layered structure of the software mechanism and the primary programs that are executed concurrently in a multitasking mode, in accordance with the invention. At the top, a user interface 126 communicates with MMAP 102 and MMDCP 106, both of which are above MMPM 104. The latter program interacts with the IBM OS/2 Presentation Manager (PM) program 99 which is above the operating system kernel 98, which sits on top of device drivers 120. PM 99 also communicates with MMAP 102 and MMDCP 106. A device communications program 122 is between drivers 120 and BIOS 42 which is the lowest software layer and provides device specific processing for operating multimedia devices 124. These devices include video disc player 118, and any MMD 96 such as video tape, digital audio, compact disc (CD), and digital video

devices.

DEPR:

MMAP 102 is a user oriented application program providing access to services of multimedia devices appropriate to the application, e.g., a video disc browsing program. MMAP 102 interacts with MMDCP 106 for the purpose of providing a user interface for the appropriate device, and with MMPM 104 for opening and closing the device and accessing specific features or performing custom processing not available via the more generic MMDCP 106. MMPM 104 implements a high level, device independent interface to multimedia devices for application use and includes support for device context switching, data streaming, and management of device contention. PM 99 is used for its screen management functions and capability of creating windows on a display screen. OS/2 kernel 98 represents the services provided by the IBM OS/2 operating system. These services generally include functions for process and resource management. Kernel 98 and PM 99 are omitted from later drawing figures for simplicity of illustration.

OS/2 **device drivers** 120 are device specific control programs providing a software interface for controlling individual devices. A **device driver** at this level generally provides services for a device of a specific type and manufacturer. Device communications 122 indicates a communication mechanism by which a **device driver** accesses an attached device. Some devices are card type adapters installed in the system for access by the system bus. External devices are generally attached to the computer by a cable plugged into the parallel port or the serial port.

DEPR:

MMDCP 106 comprises an audio control 101, a video control 103, a player control 105, one or more **control instances 107, panel** templates 109, interface logic 111, and device logic 113. Controls 101, 103, and 105 are separate generic routines or programs for controlling multimedia devices having audio, video, and player attributes. In general, an application program first opens a device, and then sends a message to MMDCP to create a control screen which is done by making an instance or copy of the appropriate control and then attaching the control instance to the device. That is, once the instance has been made, it is necessary to inform it of the identity of the device it will be controlling so that the commands can be sent to the proper device. After attachment, the control instance performs its primary function of controlling the particular device, as described in more detail hereinafter.

DEPR:

FIG. 4 illustrates various functions 134, 136, and 138 as performed in the prior art by a typical application program 102' and the interfaces between such program and user interface (UI) 126' and MMPM 104. The illustration is for a system having a single multimedia device 124. The graphics on the screen display together with the means for manipulating the graphics and making selections, form the user interface 126' through which the user interacts with the system to control operation of the multimedia devices. Input messages 130 from the user into the application program 102' include UI selections made by the user actuating the various buttons, sliders, dials, etc. Output communications or messages 132 from the application to the user interface include **controlling and updating the panel** display, indicating changes in status of the multimedia devices, enabling and disabling buttons or controls which are or are not appropriate for the current device state. For example, if a device is not playing, then the pause button is disabled because its use is not applicable. Other application interactions 128, such as those not pertinent to the control of a MMD, may also occur with the user interface.

DEPR:

MMDCP 106 can create three different types of **control panels**: a video **control panel** for a device, such as a graphics/video overlay adapter, having video attributes; an audio **control panel** for a device, such as an amp/mixer device,

having audio attributes; and a player control panel for a device, such as a videodisc player, having player attributes. A video control panel typically includes a freeze push button, and circular sliders or dials to control brightness, contrast, saturation, hue, and sharpness. An audio control panel typically includes a mute push button and a series of circular sliders to control volume, balance, treble, and bass. A player control panel typically includes push buttons for combinations of the following player actions: eject, pause, play backward, play forward, play reverse, record, repeat, rewind, scan backward, scan forward, scan reverse, step backward, step forward, and stop. A player control panel might also include a linear slider for position display. It should be obvious that the individual controls depend on the capabilities of the attached multimedia device(s) and the configuration of the player control screen.

DEPR:

FIG. 6 illustrates the manner in which MMDCP 106 controls two multimedia operations for a MMAP that runs two multimedia devices. The devices might be, e.g., a player device 124-1 such as videodisc player 108 connected to the serial port, and an audio device 124-2 connected to one of the expansion connectors 50 and accessible over the system bus. For such a configuration, MMAP 102 needs to send a first DEVICE OPEN message 162-1, a first DEVICE ID message 152-1, and a first CREATE message 150-1 to create a player control instance 107P, and to then send a second DEVICE OPEN message 162-2, a second DEVICE ID message 152-2, and a second CREATE message 150-2 to create an audio control instance 107A. Also, respective player and audio device drivers 120-1 and 120-2 and respective device communications 122-1 and 122-2 have to have been loaded into the system, for establishing communications with the respective multimedia devices. With two devices, the control screen 200 in FIG. 2 could display player control panel 208 and audio control panel 204. Once the control instances are attached, each control instance manages its attached device and configures itself according to the device capabilities. During operation, player control instance 107P receives communications 130-1 for the UI and sends messages 132-1 to the UI, while audio control instance 107A receives messages 130-2 from the UI and sends messages 132-2 to the UI. In the prior art, the application program has to implement and manage the additional functionality to address and handle the functional differences between player and audio devices.

DEPR:

FIG. 7 shows further details of control message processing that is done in response to receiving messages or inputs 170, 172, 174, and 176 from four sources, namely, MMAP 102, UI 126, the operating system, and multimedia device 124 inputs through MMAP 104. In response to receiving a CREATE control screen command, MMDCP is operative to perform the functions 178 and acquire the resources (e.g., memory) for the display, make the desired control panels, and place them on the screen. In response to receiving a DESTROY message from the application, actions 180 release the resources, and discard the window and any control panels on the screen. In response to receipt of a DEVICE ID message from the application, actions 182 comprise checking the validity of the device ID, making a control instance by copying the control and then attaching the control instance to the open device, determining device capabilities, querying the device status, and updating the control panels, e.g., by enabling or disabling components and changing current settings. The attaching is simply notifying the control instance of the ID of device to be controlled. Actions 184 are functions or actions performed in response to miscellaneous messages from the application and include enabling or disabling the sending of notification messages to the application, toggling application notify on/off, toggling device communication on/off, and using custom control panel layout.

DEPR:

Action 186 updates control panels as necessary in response to receiving

messages from the operating system. Such messages include hide, show, move, paint, etc. In response to receiving device notification messages, actions 188 include updating the control panel as necessary. If an error has occurred, a recovery attempt is made or the component is disabled. Timed events are events which occur at a device asynchronously with respect to a command issued to the device. For example, if the device is instructed to play for a certain amount of time, the completion of the play command is a timed event which results in a notification being sent to MMDCP 106. At this point, MMDCP 106 stops animating the play button and changes the appearance of the play button to be consistent with a "stop" state. Other timed events might include position notifications and cuepoints. When an input 172 is received, actions 190 are performed to check the current control panel/device context, and determine what actions are necessary. If for example, a device is already playing and the play button is selected, the context indicates no action is necessary and the selection of the play button is ignored. The actions to be done include cancelling current operations, sending device commands, examining device command responses, attempting error recovery, and updating the control panel as necessary. The specific details of the actions described relative to FIG. 7 should be obvious to those skilled in the art and have been omitted to shorten description particularly since the details are not claimed.

DEPR:

A typical sequence of actions that occur can be illustrated by the example of audio control panel 204 and volume controller 221 (FIG. 2). Suppose the user desires a volume increase. To accomplish this using the mouse, the mouse is manipulated to position cursor 210 on button 227 and then clicked and held until the volume increases to the desired level. In response to the mouse being clicked, the following sequence of actions occur. First, presentation manager 99 (FIG. 3) determines which application, the cursor is currently being operated under, which window the cursor is being operated in, and which object in the window has been selected. In this example, the object is the audio controller volume increase button. PM 99 then sends a user interface message 172 (FIG. 7) to the audio control instance which message identifies the object and the control action desired. In response to receiving the message, the audio control instance then performs the functions 190 and determines what actions are necessary. The first is to decide whether to cancel any current operation. If the mute button is on, it would be cancelled to allow audio to be produced by the device. Next, a volume increase device command is sent to the audio device to increase the volume by an increment. At this point the device responds and if the response indicates such action has been done without error, the next action is to update the pointer of the volume dial and this is done by sending a message through PM 99 and user interface which thereupon redraws the volume dial pointer to a new position representing an increment of volume increase. The sequence of actions repeat until the mouse button is released, or until the maximum volume is reached. An optional action (not shown) could be performed before communicating with the device, to give the application program the opportunity to handle the user selection. This is useful in situations where operational customization is done by the application, instead of operating by the control instance. With this option, the application would send a return code indicating it will or will not handle the message.

DEPR:

As indicated above, MMDCP 106 includes a variety of panel templates 109 that are used in making a control panel in 178. MMDCP provides the application programmer with the options of accepting a default panel, a minimal panel, a complete panel, or a custom panel. A complete panel includes all the supported dials, buttons, sliders, etc. for controlling a particular device. A minimal panel includes only those controllers generally considered absolutely necessary. Naturally, the minimal panel occupies less screen area than a complete panel. A custom panel could be defined by the application and use any subset of the components of a complete panel, change relative positions,

include other functions, etc. The templates also include vertically oriented panels, such as the audio and video panels shown in FIG. 2, and horizontally oriented panels, for both complete and minimal panels. Additional options include animated buttons (such as movement of arrows on a Play button when a device is playing), and the ability for an application to request that the control only present a user interface but not communicate with the device. This option may be useful if the application desires to control other devices while taking advantage of the user interface standards and processing. The designs of the panels provide a uniform appearance and common look and feel between different applications.

DEPR:

In response to successful execution of the above code, a device ID is obtained, a window is created, a player control instance is created, and the device is set. The player control instance will display the control screen including the player control panel, handle all user interface actions, communicate with the videodisc player, etc. No other code in the application program is needed to perform or process selections from the control panel.

DEPR:

The window style of the MMDCP specifies, among other things, the orientation of the control panel (vertical or horizontal) and the degree of desired device control (minimal, complete). The control program uses the style to select one of four layouts for the initial appearance. For example, audio control 204 in FIG. 2 is a vertical, complete control. The result thus promotes a consistent user interface.

DEPR:

The panel templates 109 each specify the type of components and their positions using a dialog template of PM. By way of example, the dialog template corresponding to the layout of audio control panel 204 is:

DEPR:

For the purpose of defining the layout of a control panel, the window class specified in the dialog template is ignored for each of the predefined components such as the mute button or the volume dial. To create the control panel display, the MMDCP uses the information in the template to create each of the desired components. The subset of components present influences the subsequent operation of the MMDCP. For example, a minimal audio control includes only a volume dial and a mute button. A request to update the control panel would query the device only for the applicable information, i.e., the volume and mute status. A complete audio control would cause a query of the device for all of the components, i.e., the mute, volume, bass, and treble status.

DEPR:

The template mechanism also allows the MMAP to specify an alternative layout for a control panel. This is done through an optional miscellaneous application message 184 to USE CUSTOM CONTROL PANEL LAYOUT. In this case, the MMAP provides the desired template to the MMDCP after the panel is created. The custom template supersedes any layout selected at MMDCP creation time. If neither minimal nor complete is specified in the style, then the MMDCP assumes that the MMAP will subsequently provide a layout and no components are created until this is done.

DETL:

```
***** BEGIN EXAMPLE CODE *****
//Open a videodisc device with an alias name and obtain a //device ID
OpenDevice ((LPSTR)szVdiscDevName, (LPSTR)szVdiscAlias, &wVdiscDevID);
//Create a window to hold the Player Control Panel on the //screen hwndVPCDIg
= WinLoadDlg(HWND.sub.-- DESKTOP, hwndClient, pVPCDIgProc, 0, ID.sub.--
```



```
DLG.sub.-- VPC, NULL); //Create the Player Control Panel using MINIMAL
//configuration. "hwndVPC" is the handle uses for any further //communication
with the player control hwndVPC = WinCreateWindow (hwndVPCDig, //Use the
window above WC.sub.-- PLAYERCTL, //Create Player Control " ", //Misc OS/2
item WS.sub.-- VISIBLE .vertline. MCS.sub.-- MINIMAL //Select panel style
X.sub.-- MMCTL, Y.sub.-- MMCTL //Starting screen location 200,100 //Size
hwndVPCDig, //Misc OS/2 item HWND.sub.-- TOP //Misc OS/2 item ID.sub.--
VPC.sub.-- WND, //Misc OS/2 item NULL, //Misc OS/2 item NULL); //Misc OS/2
item //Inform the Player Control to use the videodisc player that //was
opened earlier WinSendMsg (hwndVPC, MCM.sub.-- SETDEVICEALIAS, szVdiscAlias,
0) *****END SAMPLE CODE *****
```

CLPR:

7. A MMDPS in accordance with claim 1 wherein said MMDCM further comprises a plurality of predefined **control panels** for each class of said controls, said MMDCM being further operative in response to said CREATE message to select one of said predefined **control panels** for display in said control screen.

CLPR:

8. A MMDPS in accordance with claim 7 wherein said predefined **control panels** for each class include a minimal **control panel** and a complete **control panel**, said minimal **control panel** having a minimum number of controllers for controlling a minimum number of functions, and said complete **control panel** having a plurality of controllers for controlling a maximum number of functions of each class.

CLPR:

12. A MMDPS in accordance with claim 11 wherein said minimal **control panel** templates and said complete **control panel** templates further define **control panels** of horizontal and vertical orientations.

CLPV:

said selected control comprising third means for creating a control screen on said monitor in said user interface, said **control screen having a control panel** comprising a plurality of user actuated controllers for controlling different functions of said open MMD;

CLPV:

said MMDCM further comprises a plurality of predefined **control panels** for each class of said controls, said MMDCM being further operative in response to said CREATE message to select one of said predefined **control panels** for display in said control screen;

CLPV:

and said processing means is further operative in response to receiving said DEVICE ID message to determine device capabilities and device status, and send messages to said user interface for updating said **control panel** in accordance with said device capabilities and said device status.

CLPV:

said MMDCM is further operative in response to receiving a second CREATE message to create a second control instance and a second **control panel** for a second MMD.

CLPV:

said predefined **control panels** further comprise **control panels** of horizontal and vertical orientations.

CLPV:

and multimedia device control means (MMDCM) layered between said first means and said second means, said MMDCM comprising a plurality of **control panel**

templates for each class of said controls, said templates for each class include a minimal control panel template and a complete control panel template, said minimal control panel template defining a minimum number of controllers for controlling a minimum number of functions, and said complete control panel template defining a plurality of controllers for controlling a maximum number of functions of each class;

CLPV:

said MMDCM being responsive to a CREATE message from the application program to select one of said templates and send a message to said user interface to create a control panel in said control screen in accordance with the definition in the template so selected;

CLPV:

said control panel in said control screen comprising a plurality of user actuated controllers for controlling different functions of said open MMD;

CLPV:

(d) creating a control screen on said monitor in said user interface, said control screen including a control panel comprising a plurality of user actuated controllers for controlling different functions of said open MMD;

CLPV:

storing in said storage system a plurality of control panel templates for each class of said controls, said templates for each class include a minimal control panel template and a complete control panel template, said minimal control panel template defining a minimum number of controllers for controlling a minimum number of functions, and said complete control panel template defining a plurality of controllers for controlling a maximum number of functions of each class;

CLPV:

said step (d) being performed by creating said control panel in said control screen in accordance with the definition in the one template so selected.

CLPV:

determining device capabilities and device status, and sending a message from said control instance to said user interface to update said control panel in accordance with said device capabilities and said device status.

CLPV:

storing in said storage system a plurality of control panel templates for each class of said controls, said templates for each class include a minimal control panel template and a complete control panel template, said minimal control panel template defining a minimum number of controllers for controlling a minimum number of functions, and said complete control panel template defining a plurality of controllers for controlling a maximum number of functions of each class;

CLPV:

including in said application program a template defining a custom control panel;

CLPV:

said step (d) creates a custom control panel in said control screen when said custom control panel template is specified in said CREATE message.